REMARKS

This Response is in reply to the Office Action mailed on April 11, 2008. Applicant requests a one month extension of time pursuant to 37 C.F.R. § 1.136 and has enclosed the associated fee herewith.

Applicant hereby amends the specification as described above. Applicant asserts that the amendments to the specification do not add new matter.

Applicant hereby amends the claims as described in the above listing of claims. Applicant asserts that the claim amendments are supported by the specification in the application as filed and thus do not contain new matter.

I. New Drawings

Applicant has submitted three additional drawings, Figs. 5 – 7, pursuant to 37 C.F.R. § 1.121(d). Applicant submits that these drawings are supported in the specification as filed and do not contain new matter. Specifically, Applicant shows the following support in the specification as filed for Figs. 5 – 7.

Fig. 5

Fig. 5 is a time-series drawing for access link failure. Paragraph [0006], section (iii) of the application states that link failures are often due to "the failure of some equipment within the packet network or to a cable being damaged or cut." Applicant asserts that the plain meaning of the word "failure" accompanied with the example of a cable being cut in paragraph [0006] provides support for Fig. 5.

In addition, Fig. 1 shows Access Link 13 that connects Packet Network 14 to Local Area Network 12. It is apparent from Fig. 1 that if Access Link 13 is "cut" or experiences a "failure", no packets will be able to travel from Multimedia Communications Device 11 to Packet Network 14. Nor will any packets be able to travel the reverse route. Thus, Network Analyzer 10 will detect zero packets traveling to or from Access Link 13. The flat line of

Fig. 5 illustrates this fact that no packets will be able to travel over an access link that has "failed".

Fig. 6

Fig. 6 is a time-series drawing for route flapping. Paragraph [00011], section (i) of the application describes route flapping as a condition "in which the route taken by packets may change from one persistent route to another . . . ." Continuing, the specification states that route flapping will "result[] in a step change in delay[.]"

First, Applicant asserts that the specification and drawings as filed provide support for a "step change in delay." Specifically, paragraph [00031] states that "route change would result in a step-like signature as the delay encountered by all packets following the route change would be similarly increased or decreased." (emphasis added.) And paragraph [00033] states, in reference to Fig. 4, that "[a] route change event group 42 is characterized by a step increase or reduction in delay . . . ." (emphasis added.) Fig. 4 shows a step increase in delay accompanying Route Change Event Group 42. This step change in delay is similar to the multiple step changes in delay (both increases and reductions in delay) in Applicant's new Fig. 6.

Second, Applicant asserts that the word "flapping" in the term "route flapping" implies that the packets repeatedly switch back and forth between two or more routes. Applicant asserts that the plain meaning of the word "flapping" supports Applicant's new Fig. 6 where Applicant shows repeated step changes in delay as the route taken by the packets in the network "flaps" or oscillates between two different routes.

Fig. 7

Fig. 7 is a time-series drawing for route diversity. Paragraph [00011], section (ii) describes route diversity (also known as load sharing) as a condition "in which packets are sent by diverse routes . . . ." The specification continues, stating that route diversity "results in a wide variation in the delay of packets and a significant number of packets arriving out of sequence[.]" Fig. 7 shows the wide variation in packet delay as the packets periodically switch routes and thus is supported by the specification as filed.

Furthermore, Applicant asserts that the plain meaning of the phrase "route diversity" means that the packets traveling over the network take different routes from origin to destination. Thus, it is apparent that route diversity is a series of route change events that occur over time. As described above, Fig. 4 shows a step increase in delay accompanying Route Change Event 42. Applicant's new Fig. 7 shows a series of step increases and decreases in delay over an extended period of time as the route taken by the packets from origin to destination periodically changes. Such step changes in delay find support in Fig. 4's illustration of a step increase in delay following Route Change Event 42.

II. Claim Objections

Claim 5

Examiner objected to Claim 5 because it contained the term "packet loss" twice. Applicant has amended Claim 5 to remove one instance of the term "packet loss." Accordingly, Applicant respectfully requests allowance of Claim 5.

III. Claim Rejections – 35 U.S.C. § 112

Claim 31 (Enablement)

Examiner has rejected Claim 31 under 35 U.S.C. § 112, first paragraph, as failing to comply with the enablement requirement. Examiner states that it is not clear how to determine the number of packets received out of sequence "as a" percentage of the total number of packets received. Applicant traverses this rejection and respectfully requests reconsideration and withdrawal of the rejection.

Paragraph [00022] teaches that the network analyzer 10 will receive "time stamped or sequence numbered packets 23." Likewise, paragraph [00024] teaches that "RTP packets used to transport real time traffic have transmit timestamps and sequence numbers, and are transmitted at regular intervals." Paragraph [00030] teaches that the proportion of out-of-sequence packets is "calculated as a measure of how many arriving packets are not in the

same sequence as that in which they were transmitted." Further, "the proportion of out-of-sequence packets is expressed as a percentage of the total packets received."

Applicant asserts that the application thus teaches how to count the number of packets received out of sequence: namely, by using the sequence number and/or time stamp present in the packets and keeping count of the number of packets that arrive out-of-sequence. Applicant further asserts that paragraph [00030] of the application teaches that the proportion of out-of-sequence packets can be expressed as a percentage of the total packets received. That is, the number of out-of-sequence packets is divided by the total number of packets received to produce a percentage value as claimed in Claim 31.

Claims 4, 10, 14, and 35 (Definiteness)

Examiner has rejected Claims 4, 10, 14, and 35 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as his invention.

Examiner first states that "it is not clear why the location of the network problem still needs to be estimated when it is determined to be the source associated with the call group with a high percentage of network problems." Applicant has amended the preamble of these claims to clarify that the "estimating" step of Claim 1 further comprises the steps of Claims 4, 10, 14, and 35, respectively. Thus, dependent Claims 4, 10, 14, and 35 now properly modify the "estimating" step of Claim 1.

Second, Examiner states that "it is not clear how the location of said network problem 'is equal to' the source associated with said call group." Applicant has amended the claims to clarify that the location of the network problem is estimated to be at the location associated with the call group (if the percentage of calls is high.)

For the foregoing reasons, Applicant therefore requests allowance of Claims 4, 10, 14, and 35, as amended.

Claim 31 (Definiteness)

Examiner has also rejected Claim 31 under 35 U.S.C. § 112, second paragraph as being vague and indefinite. As discussed above in relation to the enablement rejection of Claim 31, Applicant asserts that the specification teaches how to calculate the number of out-of-sequence packets as a percentage of the total number of packets received. Applicant further asserts that the concept of a "percentage" is a well-known mathematical operation. Therefore, Applicant traverses this rejection and respectfully requests reconsideration and withdrawal of the rejection.

IV. Claim Rejections – 35 U.S.C. § 102

Claim 1

Examiner has rejected Claim 1 under 35 U.S.C. § 102 as being anticipated by U.S. Publication No. 2004/0090923 to Kan et al. ("*Kan*"). Applicant disagrees but has amended Claim 1 to clarify that Applicant claims a plurality of problem signatures. Applicant also shows the following:

Kan diagnoses network problems by calculating a variance ratio for the number of packets received in a given interval in comparison to a baseline. See *Kan*, ¶ [0023], "IDC is defined as the variance of the number of packet arrivals in an interval of length t divided by the mean number of packet arrivals in t. . . As such, the IDC provides a measure that reflects this variance, in the form of a ratio compared to its mean . . . ." The IDC is then compared against a "threshold" value at step 48 (*Kan*, Fig. 3) to determine if there is "congestion" in the traffic flow. See *Kan*, ¶ [0036], "In step 48, the IDC determined from step 46 is compared to a threshold, where in the preferred embodiment . . . an IDC equal to or greater than the threshold is an indication of congestion in the traffic flow . . . ."

Applicant asserts that *Kan's* methods are quite different from those disclosed in Applicant's application and defined by Claim 1. First, *Kan's* "threshold" value is a simple numerical value and not a complex problem "signature" as in Applicant's application. This can be seen in Figs. 3 – 7 of Applicant's application showing different problem signatures for LAN congestion, access link congestion, route change events, access link failure, route

flapping, and route diversity. Applicant's problem signatures take into account the way packet delay (and other factors) change over time and the "shape" or "contour" of those changes, as illustrated in Applicant's Figs. 3 – 7. By contrast, *Kan*, at step 48, simply compares the current IDC to a static threshold value. Thus, *Kan* does not take into account any relative changes in the IDC over time. That is, *Kan's* application has no "memory" and cannot diagnose network problems based on the "shape" or "contour" of changes in network conditions over time. It simply diagnoses network congestion in a binary fashion (congested / not congested) at a discrete moment in time.

Second, *Kan* cannot categorize different network problems by type. Rather, *Kan* simply diagnoses whether the network does or does not have congestion in a binary fashion. That is, if the IDC (in step 48) exceeds the threshold value, then *Kan* classifies the traffic flow as congested. And if the IDC (in step 48) is less than the threshold value, then *Kan* classifies the traffic flow as not congested. (See *Kan*, ¶ [0036]; Fig. 3.) By contrast, Applicant's application shows how to diagnose network problems and categorize them into multiple types such as: LAN congestion, access link congestion, route change events, access link failure, route flapping, and route diversity.

With respect to the specific elements of Claim 1, Applicant shows the following:

Element (b):

Element (b) of Claim 1 requires the step of "grouping said levels of one or more impairments into one or more event groups." (emphasis added.) Examiner, on page 5 of the Office Action, indicates that this element is anticipated by *Kan*, ¶¶ [0023] and [0024]. Assuming, *arguendo*, that an "impairment" is when *Kan's* IDC exceeds the threshold value, *Kan* still does not group its impairments into separate event groups. Rather, *Kan* simply determines in a binary fashion whether the IDC does or does not exceed the threshold value. That is, *Kan* merely determines whether an impairment does or does not exist. But *Kan* does not make any effort to distinguish between – or group – different impairments. By contrast, Applicant's application groups its impairments into groups with a common problem

signature. Thus, Applicant asserts that *Kan* does not anticipate element (b) of Claim 1 in Applicant's application.

Element (c):

As amended, element (c) of Claim 1 requires the step of "comparing said one or more event groups with a plurality of problem signatures." Examiner, on page 5 of the Office Action, indicates that pre-amendment element (c) was anticipated by *Kan*, Fig. 3, steps 48 and 50, and ¶¶ [0036] – [0037]. Applicant disagrees but has amended the claim to clarify that Applicant's application claims comparisons with a plurality of problem signatures. Applicant also argues the following:

First, as described above, *Kan's* threshold value is vastly different from Applicant's problem signatures: *Kan's* threshold value is a simple number whereas Applicant's problem signatures resemble complex waveforms (when depicted in visual form as in Figs. 3 – 7.) Thus, comparing the IDC to the threshold value in *Kan* does not anticipate the step of comparing an event group with a plurality of problem signatures as required by amended element (c) of Claim 1 in Applicant's application.

Second, *Kan's* step 50 simply asks whether the QoS ("Quality of Service") requirement was met for the packets whose IDC (in step 48) exceeded the threshold value. However, *Kan* never describes what the QoS requirements are. Instead, *Kan* obliquely refers in several places to QoS requirements that might be imposed on the network traffic: for example, *Kan*, ¶ [0037] states that "the QoS requirements imposed on the packets may be determined in various fashions, such as by looking to a Service Level Agreement ('SLA') that exists between an internet service provider ('ISP') and its client." But *Kan* never describes what such QoS requirements would be. By contrast, Applicant's application discusses in detail a plurality of problem signatures such as: LAN congestion, access link congestion, route change events, access link failure, route flapping, and route diversity. Thus, asking whether the nebulous QoS requirements were met in step 50 of *Kan* does not anticipate the step of comparing an event group with a plurality of problem signatures as required by amended element (c) of Claim 1 in Applicant's application.

Element (d):

As amended, element (d) of Claim 1 requires the step of "categorizing at least one of said one or more event groups as being associated with a network problem having one of said plurality of problem signatures." Examiner indicates that pre-amendment element (d) was anticipated by *Kan*, ¶ [0032] and Fig. 3. Applicant disagrees but has amended the claim to clarify that Applicant's application claims categorizing an event group as being associated with one of a plurality of problem signatures. Applicant also argues the following:

As described above in regard to elements (b) and (c), *Kan* does not teach the grouping of impairments by type nor does it teach the comparing of such groups with any problem signatures. Since *Kan* does not distinguish between multiple types of network problems, it therefore does not categorize network problems as being associated with particular problem signatures as required by element (d) of Claim 1.

Applicant respectfully points out that ¶ [0032] of *Kan* merely discusses gathering information at "different network locations" and that "[f]rom this accumulated information, greater accuracy may be achieved in identifying network congestion as well as making adjustments to traffic in response to such congestion." (emphasis added.) Thus, ¶ [0032] merely discusses a single type of network problem, namely, network congestion. *Kan* does not discuss other types of network problems nor does it discuss ways to categorize network problems as being associated with particular problem signatures.

Furthermore, as discussed previously in regard to Fig. 3, neither step 48 nor step 50 involves the diagnosis of network problem in relation to a plurality of problem signatures. Step 48 merely diagnoses one type of network problem (congestion) based on comparing a measured value (IDC) to a single fixed value (threshold value.) Step 48 thus does not teach how to categorize network problems by type. Step 50 merely asks if the Quality of Service requirements were met for those packets whose IDC exceeded the threshold in step 48. *Kan* does not teach what those Quality of Service requirements may be. Thus, step 50 does not teach how to categorize network problems by type. Therefore, Applicant asserts that *Kan* does not anticipate element (d) of Claim 1 in Applicant's application.

For the foregoing reasons, Applicant respectfully requests allowance of amended Claim 1 and all claims dependent thereon.

Claim 2

Examiner has rejected Claim 2 under 35 U.S.C. § 102 as being anticipated by *Kan*. Applicant traverses this rejection and shows the following.

Element (d) of Claim 2 requires the step of "estimating the location of said network problem based on the number of calls having said network problem." Examiner, on page 6 of the Office Action, indicates that this element is anticipated by *Kan*, Fig. 3, steps 50 and 52, and ¶¶ [0037] – [0038]. Applicant asserts that step 50 of *Kan* merely attempts to "determine[] whether the packets, which correspond to the flow having the excessive IDC, satisfy the QoS required of those packets." (*See Kan*, ¶ [0037].) That is, in step 50, the console 30 merely attempts to see if certain packets are meeting their Quality of Service guarantees. Nothing in step 50 attempts to estimate a location as required by element (d) of Claim 2 of Applicant's application.

Applicant further asserts that step 52 of *Kan* involves the network monitors NM_x "re-adjust[ing] traffic parameters in an effort to reduce congestion and to correspondingly improve the chances that the QoS requirements . . . will be met for future traffic in the identified flow." (*See Kan*, ¶ [0038].) This re-adjusting of the traffic parameters may include, for example, "the re-allocation of which packets are stored in which buffers or in which portions of those buffers" or "some type of low-level control in the router that adjusts the flow on the outgoing data packet so as to reduce the chances of traffic congestion." (*See Kan*, ¶ [0038].) This re-adjusting of parameters occurs at the particular routers or network monitors and does not involve estimating the location of a network problem as required by element (d) of Claim 2 of Applicant's application.

For the foregoing reasons, Applicant respectfully requests allowance of Claim 2 and all claims dependent thereon.

Claim 6

Examiner has rejected Claim 6 under 35 U.S.C. § 102 as being anticipated by *Kan*. Applicant traverses this rejection and shows the following.

Examiner cites *Kan*, ¶ [0024] as anticipating Claim 6 of Applicant's application. Paragraph [0024] of *Kan* only mentions one type of problem: network congestion. It says nothing about route change, access link failure, route flapping, or route diversity as recited in Claim 6. Nor does *Kan* differentiate between local area network congestion and access link congestion. Therefore, Applicant respectfully asserts that *Kan* does not anticipate each and every limitation of Claim 6 in Applicant's application.

For the foregoing reasons, Applicant respectfully requests allowance of Claim 6 and all claims dependent thereon.

V. Claim Rejections – 35 U.S.C. § 103

Claim 5

Examiner has rejected Claim 5 under 35 U.S.C. § 103 as being unpatentable over *Kan* in view of U.S. Patent No. 6,990,616 to Botton-Dascal et al. ("*Botton-Dascal*"). Applicant traverses this rejection and shows the following.

Examiner, on page 9 of the Office Action, cites *Botton-Dascal* for the proposition that it teaches how to calculate the proportion of out-of-sequence packets recited in Claim 5. Applicant points out that Claim 5 is dependent upon Claim 1 and thus incorporates all the elements of Claim 1. Applicant reiterates its arguments in Part IV, above, that *Kan* does not teach or suggest all of the elements of Claim 1. Relying on said arguments, Applicant therefore asserts that dependent Claim 5 is not obvious over *Kan* in view of *Botton-Dascal*.

For the foregoing reasons, Applicant respectfully requests allowance of Claim 5 and all claims dependent thereon.

Claims 7-16, 22, 23, and 30

Examiner has rejected Claims 7-16, 22, 23, and 30 under 35 U.S.C. § 103 as being unpatentable over *Kan* in view of *Botton-Dascal*. Applicant traverses this rejection and shows the following.

Examiner has not stated any additional features of *Botton-Dascal* that render Claims 7-16, 22, 23, and 30 obvious in light of *Kan*. Therefore, Applicant reiterates its arguments in regard to Claim 5 that neither *Kan* nor *Botton-Dascal* teaches or suggests all the elements of Claim 1 or any of the claims dependent thereon. As Claims 7-16, 22, 23, and 30 all depend upon Claim 1 (and Claim 5), Applicant respectfully requests allowance of Claims 7-16, 22, 23, and 30.

VI. Conclusion

For the foregoing reasons, Applicant respectfully requests allowance of all claims, as amended. If any additional fees are due in connection with the filing of this Response or the accompanying papers, such as fees under 37 C.F.R. §§ 1.16 or 1.17, please charge the fees to SGR Deposit Account No. 02-4300, Order No. 041253.010. If an additional extension of time under 37 C.F.R. § 1.136 is necessary that is not accounted for in the papers filed herewith, such an extension is requested. The additional extension fee also should be charged to SGR Deposit Account No. 02-4300, Order No. 041253.010. Any overpayment can be credited to Deposit Account No. 02-4300, Order No. 041253.010.

Respectfully submitted,

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